USRobotics®

# COURIER 2400™

## 2400/1200/300 BPS MODEM

## QUICK-REFERENCE CARD

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## Quick-Reference Card

### COMMAND REQUIREMENTS

- Type commands in upper or lower case.
- All commands except A/ and + + + are preceded by the AT prefix and executed with a Carriage Return (<cr>).
- Command length = 40 characters, maximum. The modem does not count the AT prefix, Carriage Return, or spaces.

### COMMAND EXAMPLES

1. ATD1234567 <cr>

If set to X0 or X1, dial the number using the default (initial) dialing type (pulse) or the type set for the previous call. If set to X2 or higher, use adaptive dialing.

2. ATDT>1234567 <cr>

Dial the given number using tone dialing (T). Continue dialing until a connection is made or user cancels command by pressing any key (>).

3. ATD"BBS NEWS <cr>

Dial the number entered with alphabetic characters (").

4. ATI4 <cr>

Display the current modem settings.

5. ATZ <cr>

Reset modem to the default settings.

6. ATDT 555-1212; <cr>
   (When modem responds OK, user picks up telephone receiver.)
   ATH <cr>

Instruct the Courier 2400 to dial for a voice call. First command is to dial the number and return to command state (;). User picks up receiver to wait for an answer, and commands modem to hang up (ATH).

7. ATDT !123;H <cr>

Flash the switch-hook to transfer a call to an extension (!), then return to command state (;) and hang up (H).

8. ATM0 X4 D 1234567 W 1234,,13121234567 <cr>

Disable the speaker (M0). Return call-progress code NO DIAL TONE or BUSY (X4); also use adaptive dialing (X2 or above). Dial the number of the long-distance phone service (D); wait for a second dial tone (W); dial the password; wait four seconds (,,); then dial the long-distance number.

## COMMAND SUMMARY

| Command/ Options | Function |
|---|---|
| A | Force Answer Mode when modem hasn't received an incoming call. |
| A/ | Reexecute the last command. |
| Any key | Terminate current dialing operation resulting from issued Dial command. |
| AT | Attention: *must* precede all other commands, except A/ and + + +. |
| C*n* | Transmitter enabled/disabled. |
| | C0 Transmitter disabled |
| | C1 Transmitter enabled—Default |
| D | Dial the number that follows and go into Originate Mode. Use any of the following options: |
| | P Pulse dial—Default |
| | T Touch-Tone dial |
| | , (Comma) Pause for 2 seconds |
| | ; Return to command state after dialing |
| | "... Dial the letters that follow |
| | ! Flash switch-hook to transfer call |
| | W Wait for second dial tone (if X3 or higher is set) |
| | @ Wait for an answer (if X3 or higher is set) |
| | R Reverse frequencies |
| E*n* | Command Mode local echo: display copy of modem commands entered at the keyboard. (Not applicable once a connection has been made.) |
| | E0 Echo OFF |
| | E1 Echo ON |
| F*n* | Local echo ON/OFF once a connection has been established. |
| | F0 Echo ON (Half Duplex) |
| | F1 Echo OFF (Full Duplex)—Default |
| H*n* | On/off hook control. |
| | H0 Hang up (go on hook)—Default |
| | H1 Go off hook |
| I*n* | Inquiry. |
| | I0 Return product code |
| | I1 Return memory (ROM) checksum |
| | I2 Run memory (RAM) test |
| | I3 Return call duration/real time |
| | I4 Return current modem settings |
| K*n* | Modem clock operation. |
| | K0 At ATI3, display call duration—Default |
| | K1 At ATI3, display real time; set clock with ATI3=HH:MM:SSK1 |

## COMMAND SUMMARY

| Command/ Options | Function |
|---|---|
| M*n* | Monitor (speaker) control.<br>M0 Speaker always OFF<br>M1 Speaker ON until carrier is established—Default<br>M2 Speaker always ON<br>M3 Speaker ON after last digit dialed, OFF at carrier detect |
| O | Return online after command execution. |
| P | Pulse dial. |
| Q*n* | Quiet Mode: result codes displayed/ suppressed.<br>Q0 Result codes displayed—Default<br>Q1 Result codes suppressed |
| S*r*=*n* | Set Register commands: *r* is any S-register; *n* must be a decimal number between 0 and 255. |
| S*r*? | Query register *r*. |
| T | Tone dial. |
| V*n* | Verbal/Numeric result codes.<br>V0 Numeric Mode<br>V1 Verbal Mode—Default |
| X*n* | Result Code options. Use the following table. (Default is Extended set, codes 0-5, 10.) |

**RESULT CODES OPTIONS TABLE**

| | COMMANDS | | | | | | |
|---|---|---|---|---|---|---|---|
| | X0 | X1 | X2 | X3 | X4 | X5 | X6 |
| **RESULT CODES** | | | | | | | |
| 0/OK | X | X | X | X | X | X | X |
| 1/CONNECT | X | X | X | X | X | X | X |
| 2/RING | X | X | X | X | X | X | X |
| 3/NO CARRIER | X | X | X | X | X | X | X |
| 4/ERROR | X | X | X | X | X | X | X |
| 5/CONNECT 1200 | | X | X | X | X | X | X |
| 6/NO DIAL TONE | | | X | | X | | X |
| 7/BUSY | | | | X | X | X | X |
| 8/NO ANSWER (Requires @; replaces NO CARRIER) | | | | X | X | X | X |
| 9/Reserved for future use | | | | | | | |
| 10/CONNECT 2400 | | X | X | X | X | X | X |
| 11/RINGING | | | | | | X | X |
| 12/VOICE | | | | | | X | X |
| **FUNCTIONS** | | | | | | | |
| Adaptive Dialing | | | X | X | X | X | X |
| Wait for 2nd Dial Tone (W) | | | | X | X | X | X |
| Wait for Answer (@) | | | | X | X | X | X |
| Fast Dial | | | X | | X | | X |

## COMMAND SUMMARY

| Command/ Options | Function |
|---|---|
| Z | Reset modem to its default values. |
| + + + | Escape code sequence, preceded and followed by at least one second of no data transmission. Depending on setting of DIP switch 9, the modem does the following:<br>Switch 9 DOWN (ON)—retains the phone line connection, returns to command state, sends OK result code.<br>Switch 9 UP (OFF)—disconnects (hangs up), returns to command state, and sends NO CARRIER result code. |
| > | Repeat command continuously or up to 10 dial attempts. (Cancel by pressing any key.) |
| $ | Help command summary request. |
| D$ | Help Dial command summary request. |
| S$ | Help S-register summary request. |
| <Ctrl>-S | Stop/restart display of HELP screens. |
| <Ctrl>-C or <Ctrl>-K | Cancel display of HELP screens. |

## FRONT END INDICATORS

| Symbol | Meaning |
|---|---|
| HS | High Speed |
| AA | Auto Answer/Answer |
| CD | Carrier Detect |
| OH | Off Hook |
| RD | Receive Data |
| SD | Send Data |
| TR | Terminal Ready |
| MR | Modem Ready/Power |
| AL | Analog Loopback |

## RS-232C INTERFACE PIN DEFINITIONS

| Pin | Assignment | Signal Flow |
|---|---|---|
| 2 | Transmit Data | Terminal → Modem |
| 3 | Receive Data | Terminal ← Modem |
| 5 | Clear to Send | Terminal ← Modem |
| 6 | Data Set Ready | Terminal ← Modem |
| 7 | Signal Ground | Terminal ↔ Modem |
| 8 | Carrier Detect | Terminal ← Modem |
| 12 | Speed Indicate | Terminal ← Modem |
| 20 | Data Terminal Ready | Terminal → Modem |
| 22 | Ring Indicate | Terminal ← Modem |

## DIP SWITCHES: UP = OFF, DOWN = ON

| Switch | Factory Setting | Function | |
|---|---|---|---|
| 1 | DOWN | Data Terminal Ready Override | |
| | | UP | DTR normal; RS-232C Pin 20 controls modem |
| | | DOWN | DTR always ON (override) |
| 2 | UP | Verbal/Numeric Result Codes | |
| | | UP | Verbal (word) messages |
| | | DOWN | Numeric result codes |
| 3 | DOWN | Result Code Display | |
| | | UP | Quiet mode, no display |
| | | DOWN | Result codes displayed |
| 4 | UP | Command Mode Local Echo | |
| | | UP | Modem echoes (displays) commands sen from keyboard |
| | | DOWN | Modem does not echo |
| 5 | DOWN | Auto Answer | |
| | | UP | Modem answers on first ring |
| | | DOWN | Auto Answer Suppressed |
| 6 | DOWN | RS-232C Carrier Detect Pin | |
| | | UP | RS-232C Pin 8 indicates modem is on-line and a carrier data signal is present |
| | | DOWN | Carrier Detect signal always ON (override) |
| 7 | UP | Single/Multiphone Installation | |
| | | UP | Single phone connection (RJ11 jack) |
| | | DOWN | Multiple phone installation (RJ12 or RJ13 jack) |
| 8 | DOWN | 'AT' Command Set Recognition | |
| | | UP | AT command set recognition disabled |
| | | DOWN | Normal operations |

## DIP SWITCHES: UP = OFF, DOWN = ON

| Switch | Factory Setting | Function | |
|---|---|---|---|
| 9 | DOWN | Escape Code (+ + +) Operations | |
| | | UP | At + + +, modem disconnects, displays NO CARRIER |
| | | DOWN | At + + +, modem doesn't disconnect, returns to command state, displays OK |
| 10 | UP | Reserved for future use | |
| Quad Switch | UP | Send/Receive Operations, Terminal to Modem | |
| | | UP | Normal assignments: Pin 2, transmit to modem; Pin 3, receive from modem |
| | | DOWN | Alternate assignments: Pin 2, receive from modem; Pin 3, transmit to modem |

### ASCII CHART

| DEC | HEX | CHAR | DEC | HEX | CHAR | DEC | HEX | CHAR | DEC | HEX | CHAR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | 00 | NUL | 32 | 20 | SP | 64 | 40 | @ | 96 | 60 | ` |
| 01 | 01 | SOH | 33 | 21 | ! | 65 | 41 | A | 97 | 61 | a |
| 02 | 02 | STX | 34 | 22 | " | 66 | 42 | B | 98 | 62 | b |
| 03 | 03 | ETX | 35 | 23 | # | 67 | 43 | C | 99 | 63 | c |
| 04 | 04 | EOT | 36 | 24 | $ | 68 | 44 | D | 100 | 64 | d |
| 05 | 05 | ENQ | 37 | 25 | % | 69 | 45 | E | 101 | 65 | e |
| 06 | 06 | ACK | 38 | 26 | & | 70 | 46 | F | 102 | 66 | f |
| 07 | 07 | BEL | 39 | 27 | ' | 71 | 47 | G | 103 | 67 | g |
| 08 | 08 | BS | 40 | 28 | ( | 72 | 48 | H | 104 | 68 | h |
| 09 | 09 | HT | 41 | 29 | ) | 73 | 49 | I | 105 | 69 | i |
| 10 | 0A | LF | 42 | 2A | * | 74 | 4A | J | 106 | 6A | j |
| 11 | 0B | VT | 43 | 2B | + | 75 | 4B | K | 107 | 6B | k |
| 12 | 0C | FF | 44 | 2C | , | 76 | 4C | L | 108 | 6C | l |
| 13 | 0D | CR | 45 | 2D | – | 77 | 4D | M | 109 | 6D | m |
| 14 | 0E | SO | 46 | 2E | . | 78 | 4E | N | 110 | 6E | n |
| 15 | 0F | SI | 47 | 2F | / | 79 | 4F | O | 111 | 6F | o |
| 16 | 10 | DLE | 48 | 30 | 0 | 80 | 50 | P | 112 | 70 | p |
| 17 | 11 | XON | 49 | 31 | 1 | 81 | 51 | Q | 113 | 71 | q |
| 18 | 12 | DC2 | 50 | 32 | 2 | 82 | 52 | R | 114 | 72 | r |
| 19 | 13 | XOFF | 51 | 33 | 3 | 83 | 53 | S | 115 | 73 | s |
| 20 | 14 | DC4 | 52 | 34 | 4 | 84 | 54 | T | 116 | 74 | t |
| 21 | 15 | NAK | 53 | 35 | 5 | 85 | 55 | U | 117 | 75 | u |
| 22 | 16 | SYN | 54 | 36 | 6 | 86 | 56 | V | 118 | 76 | v |
| 23 | 17 | ETB | 55 | 37 | 7 | 87 | 57 | W | 119 | 77 | w |
| 24 | 18 | CAN | 56 | 38 | 8 | 88 | 58 | X | 120 | 78 | x |
| 25 | 19 | EM | 57 | 39 | 9 | 89 | 59 | Y | 121 | 79 | y |
| 26 | 1A | SUB | 58 | 3A | : | 90 | 5A | Z | 122 | 7A | z |
| 27 | 1B | ESC | 59 | 3B | ; | 91 | 5B | [ | 123 | 7B | { |
| 28 | 1C | FS | 60 | 3C | < | 92 | 5C | \ | 124 | 7C | \| |
| 29 | 1D | GS | 61 | 3D | = | 93 | 5D | ] | 125 | 7D | } |
| 30 | 1E | RS | 62 | 3E | > | 94 | 5E | ^ | 126 | 7E | ~ |
| 31 | 1F | US | 63 | 3F | ? | 95 | 5F | _ | 127 | 7F | DEL |

## S-REGISTERS

| Register | Function | Default |
|---|---|---|
| S0 | Set the number of rings before automatic answering when DIP switch 5 is UP. Default = 1. S0=0 suppresses Auto Answer and is the equivalent of the DIP switch 5 factory setting (DOWN). | See DIP Switch 5 |
| S1 | Counts and stores number of rings from an incoming call. | 0 |
| S2 | Define escape code character. Default = +. | 43 |
| S3 | Define ASCII character recognized as Carriage Return. | 13 |
| S4 | Define ASCII character recognized as Line Feed. | 10 |
| S5 | Define ASCII character Backspace. | 8 |
| S6 | Set number of seconds the modem waits before dialing. | 2 |
| S7 | Set number of seconds the modem waits for a carrier. | 30 |
| S8 | Set duration, in seconds, for the pause (,) option in the Dial command and the pause between command reexecutions for the Repeat (>) command. | 2 |
| S9 | Set duration, in tenths of a second, of remote carrier signal before recognition. | 6 |
| S10 | Set duration, in tenths of a second, modem waits after loss of carrier before hanging up. | 7 |
| S11 | Set duration and spacing, in milliseconds, of dialed Touch-Tones. | 70 |
| S12 | Define guard time, in 50ths of a second, for escape code sequence. | 50 |
| S16 | Bit-mapped register for modem self-testing:<br>S16 = 0 Data mode (no testing)<br>= 1 Analog Loopback<br>= 2 Dial Test<br>= 4 Test Pattern<br>= 5 Analog Loopback and Test Pattern | 0 |